

whose content of comonomers is in the range from 0.7 to 1.4% by weight if the only comonomer present in the propylene copolymers is ethylene, or whose content of comonomers is in the range from 0.7 to 3.0% by weight if at least one C₄-C₁₀-1-alkene is present as comonomer; and whose cold-xylene-soluble fraction is from 1.0 to 2.5% by weight if ethylene is present as a comonomer in the propylene copolymers, or whose cold-xylene-soluble fraction is from 0.75 to 2.0% by weight if the only comonomers present are C₄-C₁₀-1-alkenes, are melt extruded through a die to give a film, the extruded film is cooled to from 100 to 20°C so that it solidifies, the solidified film is stretched in the longitudinal direction at from 80 to 150°C with a stretching ratio of at least 4:1 and in the transverse direction at from 120 to 170°C with a stretching ratio of at least 5:1.

2. (amended) A process as claimed in claim 1 in which said random propylene copolymers comprise exclusively ethylene as comonomer.

3. (amended) A process as claimed in claim 1 in which said random propylene copolymers comprise 1-butene as comonomer.

4. (amended) A process as claimed in claim 1 in which said random propylene copolymers have a Q₅ value greater than or equal to 200, where Q₅ is given by

$$Q_5 = 1000 \times \frac{\mu(T_m)}{\mu(T_m - 5K)}$$

and

b1
b2

μ(T_m) is the elongational viscosity of the random propylene copolymer at the lowest temperature at which the copolymer is fully molten, and μ(T_m -5K) is the elongational viscosity at a temperature which is lower by 5K, and the elongational viscosities are determined 2 seconds after stretching begins at a constant strain rate (Hencky strain rate) $\dot{\epsilon}$ of 0.2 s⁻¹.

5. (amended) A process as claimed in claim 1 in which said random propylene copolymers have a PI (Processability Index) of greater than 18, where the PI is determined from the formula

$$PI = \ln(SH + 1) \cdot (\ln Q_3 + \ln Q_5),$$

Q₅ is given by

$$Q_5 = 1000 \times \frac{\mu(T_m)}{\mu(T_m - 5K)}$$

and Q₃ is given by

$$Q_3 = 1000 \times \frac{\mu(T_m)}{\mu(T_m - 3K)},$$

μ(T_m) is the elongational viscosity at the lowest temperature at which the copolymer is fully molten, μ(T_m -5K) is the elongational viscosity at a temperature which is lower by 5K and μ(T_m -3K) is the elongational viscosity at a temperature which is lower by 3K, and the elongational viscosities are determined 2 seconds after stretching begins at a constant strain rate (Hencky strain rate) $\dot{\epsilon}$ of 0.2 s⁻¹,

b1
and the factor SH (Strain Hardening) is the ratio of the maximum gradient of the curve of elongational viscosity plotted against time on a double logarithmic scale for temperatures less than $T_m - 5K$ to the gradient of the elongational viscosity curve 1 second after stretching begins at a constant Hencky strain rate $\dot{\epsilon}$ of 0.2 s^{-1} at a temperature of $T_m - 5K$.

6. (amended) A process as claimed in claim 1, in which said random propylene copolymers are produced by polymerization in the gas phase at from 50 to 100°C and at a pressure of 15 to 40 bar in the presence of a Ziegler-Natta catalyst system comprising

- a) a titanium-containing solid component comprising at least one halogen-containing magnesium compound and an electron donor,
- b) an aluminum compound and
- c) at least one other electron-donor compound,

and the ratio of the partial pressures of propylene and of the comonomers is adjusted to from 400:1 to 15:1 and the molar ratio of the aluminum compound b) and the other electron-donor compound c). is adjusted to from 20:1 to 2:1.

Cancel claims 7-10.